

State of Hawaii
DEPARTMENT OF LAND AND NATURAL RESOURCES
Division of Aquatic Resources
Honolulu, Hawaii 96813

July 22, 2009

Board of Land
and Natural Resources
Honolulu, Hawaii

Request for Authorization and Approval to Issue a Papahānaumokuākea Marine National
Monument Research Permit to Elizabeth Keenan, NOAA, Papahānaumokuākea Marine National
Monument, for Access to State Waters to Conduct NWHI Reef Assessment and Monitoring
Programs

The Division of Aquatic Resources (DAR) hereby submits a request for your authorization and approval for issuance of a Papahānaumokuākea Marine National Monument research permit to Elizabeth Keenan, Research Specialist, NOAA, Papahānaumokuākea Marine National Monument, pursuant to § 187A-6, Hawaii Revised Statutes (HRS), chapter 13-60.5, Hawaii Administrative Rules (HAR), and all other applicable laws and regulations.

The research permit, as described below, would allow entry and research activities to occur in the Papahānaumokuākea Marine National Monument (Monument), including the NWHI State Marine Refuge and the waters (0-3 nautical miles) surrounding the following sites:

- Necker Island (Mokumanamana),
- Maro Reef
- Laysan Island,
- Lisianski Island, Neva Shoal,
- Kure Atoll State Seabird Sanctuary

The activities covered under this permit would occur from September 13, 2009 through October 25, 2009.

The proposed activities are a renewal of work previously permitted and conducted in the Monument.

INTENDED ACTIVITIES

The applicant proposes to conduct reef assessment and monitoring activities throughout the Monument. These efforts would contribute to continuing research providing scientific information needed to support ecosystem approaches to the management of coral reef systems of the Monument. The annual NWHI RAMP (Reef Assessment and Monitoring Program) cruise would conduct quantitative surveys of coral, algae, fish, and non-coral invertebrates throughout the NWHI for the purpose of monitoring the shallow coral reef ecosystems.

Rapid Ecological Assessment (REA) sampling for fishes and benthic flora and fauna would be conducted at each of the six locations proposed (Necker Island, Maro Reef, Laysan Island, Lisianski Island, Midway Atoll, and Kure Atoll). At each location, a stratified random survey design would be employed to sample coral reef habitat. The stratification scheme comprises the combination of three reef zones—fore reef, back reef, and lagoon—and three depth ranges—0 to 6 m, 6 to 18 m, and 18 to 33 m. A sampling ‘site’ denotes an area of 100 m by 100 m containing coral reef habitat. Divers would conduct visual surveys at each site for fish, coral, macro invertebrates and benthic habitat using rapid ecological assessment (REA) methodologies. Additionally, when time allows, a photoquadrat would be used to take high-resolution digital images to create a historical record of the site.

The only collections proposed are of algae voucher specimens. Collection of macroalgae would be limited to one voucher specimen per species per site. This would not amount to more than one 1-gallon Ziploc bag total volume of wet specimens per site.

The activities proposed by the applicant directly support the Monument Management Plan’s priority management needs 3.1 – Understanding and Interpreting the NWHI (through action plan 3.1.1 – Marine Conservation Science).

The activities described above may require the following regulated activities to occur in State waters:

- ☒ Removing, moving, taking, harvesting, possessing, injuring, disturbing, or damaging any living or nonliving Monument resource
- ☒ Touching coral, living or dead
- ☒ Swimming, snorkeling, or closed or open circuit SCUBA diving within any Special Preservation Area or Midway Atoll Special Management Area

REVIEW PROCESS:

The permit application was sent out for review and comment to the following scientific and cultural entities: Hawaii Division of Aquatic Resources, Hawaii Division of Forestry and Wildlife, Papahānaumokuākea Marine National Monument (NOAA/NOS), NOAA Pacific Islands Regional Office (NOAA-PIRO), United States Fish and Wildlife Service Hawaiian and Pacific Islands National Wildlife Refuge Complex Office, and the Office of Hawaiian Affairs (OHA). In addition, the permit application has been posted on the Monument Web site since March 12th, giving the public an opportunity to comment. The application was posted within 40 days of its receipt, in accordance with the Monument’s Public Notification Policy.

Comments received from the scientific community are summarized as follows:

Scientific reviews support the acceptance of this application. No concerns were raised.

Comments received from the Native Hawaiian community are summarized as follows:

Cultural reviews support the acceptance of this application. No concerns were raised.

Comments received from the public are summarized as follows:

No comments were received from the public on this application.

Additional reviews and permit history:

Are there other relevant/necessary permits or environmental reviews that have or will be issued with regard to this project? (e.g. MMPA, ESA, EA) Yes ☒ No ☐

If so, please list or explain:

- The proposed activities are in compliance with the National Environmental Policy Act and HRS Chapter 343.

Has Applicant been granted a permit from the State in the past? Yes ☒ No ☐

If so, please summarize past permits:

- PMNM-2008-039 was issued to Elizabeth Keenen in 2008.
- In addition, it should be noted that the Applicant is applying for a continuation of research, previously granted to Dr. Randy Kosaki under permit PMNM-2007-048 in 2007, and to Dr. Russell Brainard under permit PMNM-2008-062 in 2008.

Have there been any a) violations: Yes ☐ No ☒
b) Late/incomplete post-activity reports: Yes ☐ No ☒

Are there any other relevant concerns from previous permits? Yes ☐ No ☒

STAFF OPINION:

DAR staff is of the opinion that Applicant has properly demonstrated valid justifications for her application and should be allowed to enter the NWHI State waters and to conduct the activities therein as specified in the application with the following special instructions and conditions, which are in addition to the Papahānaumokuākea Marine National Monument Permit General Conditions. The following special conditions have been vetted through the legal counsel of the Co-Trustee agencies.

1. This permit is not to be used for nor does it authorize the sale of collected organisms. Under this permit, the authorized activities must be for noncommercial purposes not involving the use or sale of any organism, by-products, or materials collected within the Monument for obtaining patent or intellectual property rights.

2. The permittee may not convey, transfer, or distribute, in any fashion (including, but not limited to, selling, trading, giving, or loaning) any coral, live rock, or organism collected under this permit without the express written permission of the Co-Trustees.
3. To prevent introduction of disease or the unintended transport of live organisms, the permittee must comply with the disease and transport protocols attached to this permit.
4. Tenders and small vessels must be equipped with engines that meet EPA emissions requirements.
5. Refueling of tenders and all small vessels must be done at the support ships and outside the confines of lagoons or near-shore waters in the State Marine Refuge
6. No fishing is allowed in State Waters except as authorized under State law for subsistence, traditional and customary practices by Native Hawaiians.

MONUMENT MANAGEMENT BOARD OPINION:

The MMB is of the opinion that the Applicant has met the findings of Presidential Proclamation 8031 and this activity may be conducted subject to completion of all compliance requirements. The MMB concurs with the special conditions recommended by DAR staff.

RECOMMENDATION:

“That the Board authorize and approve, with stated conditions, a Research Permit to Elizabeth Keenan, NOAA Papahānaumokuākea Marine National Monument.”

Respectfully submitted,



DAN POLHEMUS
Administrator

APPROVED FOR SUBMITTAL



LAURA H. THIELEN
Chairperson

Papahānaumokuākea Marine National Monument Compliance Information Sheet

- 1. Updated list of personnel to be covered by permit. List all personnel names and their roles here (e.g. John Doe, Diver; Jane Doe, Field Technician, Jerry Doe, Medical Assistant):** Elizabeth Keenan, Chief Scientist, Diver

Corrine Kane, Fish Diver
Yumi Yasutake, Fish Diver
Paula Ayotte, Fish Diver
Kevin Lino, Fish Diver
Jerry Ault, Fish Diver
Steve Smith, Fish Diver
Jonatha Giddens, Fish Diver
Krista Heidi, Fish Diver
Hailey McPhee, Fish Diver
Jason Helyer, Coral Diver
Erin Looney, Coral Diver
Sarah Harris, Coxswain
Daniel Turner, Data Manager
Jim Bostick, Chamber Operator
Rodney Withall, Coral Diver

- 2. Specific Site Location(s): (Attach copies of specific collection locations):** No specific Sites have been identified yet, but the process to identify them is under way. The list of potential sites will be provided before the cruise departs.

- 3. Other permits (list and attach documentation of all other related Federal or State permits):** None

- 3a. For each of the permits listed, identify any permit violations or any permit that was suspended, amended, modified or revoked for cause. Explain the circumstances surrounding the violation or permit suspension, amendment, modification or revocation.** None

- 4. Funding sources (Attach copies of your budget, specific to proposed activities under this permit and include funding sources. See instructions for more information):** The Monument directly supports this activity.

5. Time frame:

Activity start: Sept 13, 2009

Activity completion: Oct 26, 2009

Dates actively inside the Monument:

From: Sept 17, 2009

To: Oct 21, 2009

Describe any limiting factors in declaring specific dates of the proposed activity at the time of application:

Personnel schedule in the Monument: The personnel listed in 1. will be in the Monument for the entire cruise. The locations to be visited and tentative schedule are as follows:

9/17/09	Honolulu	Depart 0800, Transit to Necker
9/18/09	Transit	Transit
9/19/09	Necker	Arrive 4AM, Full dive day
9/20/09	Necker	Full Dive Day, Transit to Maro
9/21/09	Transit	Transit
9/22/09	Maro	Arrive 10AM, 2/3 dive day
9/23/09	Maro	Full dive day
9/24/09	Maro	Full dive day
9/25/09	Maro	Full dive day
9/26/09	Maro	Full Dive Day, Transit to Lisianski
9/27/09	Transit	Transit, Arrive Lisianski 3PM
9/28/09	Lisianski	Full dive day
9/29/09	Lisianski	Full dive day, Transit to Midway
9/30/09	Transit	Transit, Arrive Midway 6PM
10/1/09	Midway	Full dive day
10/2/09	Midway	Full dive day
10/3/09	Midway	Full dive day
10/4/09	Midway	Full dive day
10/5/09	Midway	Full dive day
10/6/09	Midway	Full dive day
10/7/09	Midway	Diver rest day, Transit to Kure
10/8/09	Kure	Full dive day
10/9/09	Kure	Full dive day
10/10/09	Kure	Full dive day
10/11/09	Kure	Full dive day
10/12/09	Kure	Full dive day
10/13/09	Kure	Full dive day, Transit to Midway
10/14/09	Midway	Drop off 9AM, Transit to Laysan
10/15/09	Transit	Transit, Arrive 10PM

10/16/09	Laysan Full dive day
10/17/09	Laysan Full dive day, Transit to Honolulu 5PM
10/18/09	Transit Transit
10/19/09	Transit Transit
10/20/09	Transit Transit
10/21/09	Transit Transit, Arrive Honolulu 10AM

6. Indicate (with attached documentation) what insurance policies, bonding coverage, and/or financial resources are in place to pay for or reimburse the Monument trustees for the necessary search and rescue, evacuation, and/or removal of any or all persons covered by the permit from the Monument: NOAA ships and the activities conducted off of them are considered to be self insured by the Federal Government.

7. Check the appropriate box to indicate how personnel will enter the Monument:

- ☒ Vessel
☐ Aircraft

Provide Vessel and Aircraft information: NOAA Ship Hi'ialakai

8. The certifications/inspections (below) must be completed prior to departure for vessels (and associated tenders) entering the Monument. Fill in scheduled date (attach documentation):

- ☐ Rodent free, Date:
☐ Tender vessel, Date:
☐ Ballast water, Date:
☐ Gear/equipment, Date:
☐ Hull inspection, Date:

9. Vessel information (NOTE: if you are traveling aboard a National Oceanic and Atmospheric Administration vessel, skip this question):

Vessel name:
Vessel owner:
Captain's name:
IMO#:
Vessel ID#:
Flag:
Vessel type:

Call sign:
Embarkation port:
Last port vessel will have been at prior to this embarkation:
Length:
Gross tonnage:
Total ballast water capacity volume (m3):
Total number of ballast water tanks on ship:
Total fuel capacity:
Total number of fuel tanks on ship:
Marine Sanitation Device:
Type:

Explain in detail how you will comply with the regulations regarding discharge in the Monument. Describe in detail. If applicable, attach schematics of the vessel's discharge and treatment systems:

Other fuel/hazardous materials to be carried on board and amounts:

Provide proof of a National Oceanic and Atmospheric Administration (NOAA) Office of Law Enforcement-approved Vessel Monitoring System (VMS). Provide the name and contact information of the contractor responsible for installing the VMS system. Also describe VMS unit name and type:

VMS Email:
Inmarsat ID#:

10. Tender information:

On what workboats (tenders) will personnel, gear and materials be transported within the Monument? List the number of tenders/skiffs aboard and specific types of motors: : We will be using the Hi'ialakai's small boats as well as PMNM's safeboat, which include:

HI-1: 10m Ambar jetboat RIB with diesel Yanmar engine
Hi-2: 8m Ambar jetboat RIB with diesel Yanmar engine
HI-5: 16ft Zodiac inflatable with 50 HP Honda engine
Kaku: 19ft Safeboat with twin 90 Honda engines

Additional Information for Land Based Operations

11. Proposed movement of personnel, gear, materials, and, if applicable, samples:

All will be moved on board the Hi'ialakai. Algae samples will be stored at the Monument office for future reference.

12. Room and board requirements on island: None

13. Work space needs: None

DID YOU INCLUDE THESE?

- ☐ Map(s) or GPS point(s) of Project Location(s), if applicable
- ☐ Funding Proposal(s)
- ☐ Funding and Award Documentation, if already received
- ☐ Documentation of Insurance, if already received
- ☐ Documentation of Inspections
- ☐ Documentation of all required Federal and State Permits or applications for permits

Papahānaumokuākea Marine National Monument
RESEARCH Permit Application

NOTE: *This Permit Application (and associated Instructions) are to propose activities to be conducted in the Papahānaumokuākea Marine National Monument. The Co-Trustees are required to determine that issuing the requested permit is compatible with the findings of Presidential Proclamation 8031. Within this Application, provide all information that you believe will assist the Co-Trustees in determining how your proposed activities are compatible with the conservation and management of the natural, historic, and cultural resources of the Papahānaumokuākea Marine National Monument (Monument).*

ADDITIONAL IMPORTANT INFORMATION:

- Any or all of the information within this application may be posted to the Monument website informing the public on projects proposed to occur in the Monument.
- In addition to the permit application, the Applicant must either download the Monument Compliance Information Sheet from the Monument website OR request a hard copy from the Monument Permit Coordinator (contact information below). The Monument Compliance Information Sheet must be submitted to the Monument Permit Coordinator after initial application consultation.
- Issuance of a Monument permit is dependent upon the completion and review of the application and Compliance Information Sheet.

INCOMPLETE APPLICATIONS WILL NOT BE CONSIDERED

Send Permit Applications to:

Papahānaumokuākea Marine National Monument Permit Coordinator
6600 Kalaniana'ole Hwy. # 300
Honolulu, HI 96825
nwhiperm@noaa.gov
PHONE: (808) 397-2660 FAX: (808) 397-2662

**SUBMITTAL VIA ELECTRONIC MAIL IS PREFERRED BUT NOT REQUIRED. FOR
ADDITIONAL SUBMITTAL INSTRUCTIONS, SEE THE LAST PAGE.**

Papahānaumokuākea Marine National Monument Permit Application Cover Sheet

This Permit Application Cover Sheet is intended to provide summary information and status to the public on permit applications for activities proposed to be conducted in the Papahānaumokuākea Marine National Monument. While a permit application has been received, it has not been fully reviewed nor approved by the Monument Management Board to date. The Monument permit process also ensures that all environmental reviews are conducted prior to the issuance of a Monument permit.

Summary Information

Applicant Name: Elizabeth E. Keenan

Affiliation: Research Corporation of the University of Hawaii, on contract to: National Oceanic and Atmospheric Administration/National Ocean Service/National Marine Sanctuary Program

Permit Category: Research

Proposed Activity Dates: September 13, 2009 - October 25, 2009

Proposed Method of Entry (Vessel/Plane): Vessel

Proposed Locations: Necker Island, Maro Reef, Laysan Island, Lisianski Island, Midway Atoll, and Kure Atoll

Estimated number of individuals (including Applicant) to be covered under this permit:

17

Estimated number of days in the Monument: 35

Description of proposed activities: (complete these sentences):

a.) The proposed activity would...

Conduct reef assessment and monitoring activities at Necker Island, Maro Reef, Laysan Island, Lisianski Island, Midway Atoll, and Kure Atoll. These efforts would contribute to continuing research providing scientific information needed to support ecosystem approaches to the management of coral reef systems of the Monument. The primary focus of the multi-institutional team of scientists would focus on collaborating with local agencies to implement the Pacific Reef Assessment and Monitoring Program (RAMP).

b.) To accomplish this activity we would

conduct sampling for fishes and benthic flora and fauna at six locations: Necker Island, Maro Reef, Laysan Island, Lisianski Island, Midway Atoll, and Kure Atoll. At each location, a stratified random survey design will be employed to sample coral reef habitat. The stratification scheme comprises the combination of three reef zones—fore reef, back reef, and lagoon—and three depth ranges—0 to 6 m, 6 to 18 m, and 18 to 33 m. A sampling 'site' denotes an area of

100 m by 100 m containing coral reef habitat. Divers will survey each site for fish, coral, macro invertebrates and benthic habitat using rapid ecological assessment (REA) methodologies.

c.) This activity would help the Monument by ... assisting in the evaluation (from both biological and cultural perspectives) of all future permit applications for proposed activities in coral reef areas. The statistically random nature of site selection will allow for extrapolation from these data to atoll- or bank-wide estimates of abundance. This population assessment type of model will allow for rigorous evaluation of the potential impacts of any extractive activity, including scientific and traditional/subsistence take. This will ensure that these and other activities are conducted in a manner that is consistent the long-term sustainability of cultural practices that are dependent upon abundant, healthy marine resources.

Other information or background: In addition to the primary goals of assessing species population and habitat cover estimates, we will also focus on the following research areas with accompanying descriptions and objectives:

Algae: Objectives include; determine which macro algal species are present in each island ecosystem and in what quantity; examine how algal diversity and abundance change over time; and assess whether changes in algal populations serve as good environmental indicators of reef health.

Coral community structure and health: This study is aimed at monitoring, assessing and characterizing the distribution, diversity, and abundance corals in the Northwestern Hawaiian Islands. Coral community structural parameters, including colony density, size class distribution, and diversity are enumerated and assessed in the field. As one of the primary structural architects of reefs, scleractinian corals provide shelter and food for numerous other taxa of reef inhabitants. It is not unlikely that new records or new species will be encountered during our monitoring surveys. The major objective of the coral surveys is to monitor, assess, and evaluate coral abundance, density, size class distribution, and diversity within the PMNM.

Fish: This project will build upon previous baseline and monitoring efforts to enhance the state of knowledge of coral reef fish populations. Some of the main objectives of the study include: creating a fish baseline to measure MPA effectiveness; monitoring size-frequency assemblages; assessing the status of target, indicator or keystone species; assessing response by fish community to possible ecosystem impacts; and assessing species composition and diversity.

Proposed visit to Midway Atoll (land): Due to restrictions on the number of consecutive days that divers may work, we are scheduling a rest day while in the northern section of the archipelago. The research activities will be conducted in the waters around Midway Atoll, and with the permission of FWS we would like to propose that the research staff be allowed to tour Midway Atoll, and engage in bike riding, walking tours, wildlife viewing, etc.

Section A - Applicant Information

1. Applicant

Name (last, first, middle initial): Keenan, Elizabeth, E

Title: Research Specialist, Papahānaumokuākea Marine National Monument (NOAA/NOS)

1a. Intended field Principal Investigator (See instructions for more information):

Keenan, Elizabeth, E

2. Mailing address (street/P.O. box, city, state, country, zip):

[REDACTED]

Phone: [REDACTED]

Fax: [REDACTED]

Email: [REDACTED]

For students, major professor's name, telephone and email address:

3. Affiliation (institution/agency/organization directly related to the proposed project):

National Oceanic and Atmospheric Administration/National Ocean Service/National Marine Sanctuary Program

4. Additional persons to be covered by permit. List all personnel roles and names (if known at time of application) here (e.g. John Doe, Research Diver; Jane Doe, Field Technician):

Elizabeth Keenan, benthic ecologist, NOAA Papahānaumokuākea Marine National Monument (PMNM), elizabeth.keenan@noaa.gov

Cori Kane, research coordinator, DAR, Corinne.Kane@noaa.gov

Yumi Yasutake, fish biologist, NOAA/PMNM, yumi.yasutake@noaa.gov

Fish Team, TBD

Fish Team, TBD

Fish Team, TBD

Fish Team, TBD

Fish Team, TBD
Fish Team, TBD
Fish Team, TBD
Fish Team, TBD
Coral Team, TBD
Coral Team, TBD
Invert Team, TBD
SAFEBoat coxswain, TBD
Data Manager, TBD

Section B: Project Information

5a. Project location(s):

<input type="checkbox"/> Nihoa Island	<input type="checkbox"/> Land-based	<input type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input checked="" type="checkbox"/> Necker Island (Mokumanamana)	<input type="checkbox"/> Land-based	<input checked="" type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input type="checkbox"/> French Frigate Shoals	<input type="checkbox"/> Land-based	<input type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input type="checkbox"/> Gardner Pinnacles	<input type="checkbox"/> Land-based	<input type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input checked="" type="checkbox"/> Maro Reef			
<input checked="" type="checkbox"/> Laysan Island	<input type="checkbox"/> Land-based	<input checked="" type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input checked="" type="checkbox"/> Lisianski Island, Neva Shoal	<input type="checkbox"/> Land-based	<input checked="" type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input type="checkbox"/> Pearl and Hermes Atoll	<input type="checkbox"/> Land-based	<input type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input checked="" type="checkbox"/> Midway Atoll	<input checked="" type="checkbox"/> Land-based	<input checked="" type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input checked="" type="checkbox"/> Kure Atoll	<input type="checkbox"/> Land-based	<input checked="" type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input type="checkbox"/> Other			

NOTE: There is a fee schedule for people visiting Midway Atoll National Wildlife Refuge via vessel and aircraft.

Location Description:

Rapid Ecological Assessment (REA) sampling for fishes and benthic flora and fauna will be conducted at six locations: Necker Island, Maro Reef, Laysan Island, Lisianski Island, Midway Atoll, and Kure Atoll. At each location, a stratified random survey design will be employed to sample coral reef habitat. The stratification scheme comprises the combination of three reef zones—fore reef, back reef, and lagoon—and three depth ranges—0 to 6 m, 6 to 18 m, and 18 to 33 m. A sampling 'site' denotes an area of 100 m by 100 m containing coral reef habitat. The target number of sampling sites for each location was estimated as follows:

At each location, sampling sites will be allocated proportionally among reef zone-depth strata according to the amount of coral reef habitat within each stratum. Specific site locations to be sampled within each stratum will be randomly selected from the complete list of stratum sample sites compiled using a Geographical Information System (GIS). A secondary list of alternative sampling sites will also be randomly generated for each stratum. In some situations, a randomly selected site may be determined upon arrival by the field team to be unsuitable for sampling, e.g., non-reef habitat, unsafe sea conditions, etc. In the case of unsuitable habitat, adjacent sampling sites (approximately 100 m in each direction from the original point) will be searched to the extent possible and substituted for the original site if suitable coral reef habitat is located. Sites determined to be unsuitable for REA sampling will be substituted with an alternative site from the secondary sample list.

5b. Check all applicable regulated activities proposed to be conducted in the Monument:

☒ Removing, moving, taking, harvesting, possessing, injuring, disturbing, or damaging any living or nonliving Monument resource

☐ Drilling into, dredging, or otherwise altering the submerged lands other than by anchoring a vessel; or constructing, placing, or abandoning any structure, material, or other matter on the submerged lands

☒ Anchoring a vessel

☐ Deserting a vessel aground, at anchor, or adrift

☐ Discharging or depositing any material or matter into the Monument

☒ Touching coral, living or dead

☐ Possessing fishing gear except when stowed and not available for immediate use during passage without interruption through the Monument

☐ Attracting any living Monument resource

☐ Sustenance fishing (Federal waters only, outside of Special Preservation Areas, Ecological Reserves and Special Management Areas)

☐ Subsistence fishing (State waters only)

☒ Swimming, snorkeling, or closed or open circuit SCUBA diving within any Special Preservation Area or Midway Atoll Special Management Area

6 Purpose/Need/Scope *State purpose of proposed activities:*

The annual NWHI RAMP (Reef Assessment and Monitoring Program) cruise will conduct quantitative surveys of coral, algae, fish, and non-coral invertebrates throughout the NWHI for the purpose of monitoring the shallow coral reef ecosystems. On the 2007 RAMP cruise, based on a statistical power analysis and new spatial stratification scheme, revised methods and a new random stratified site selection protocol were used at French Frigate Shoals and Pearl and Hermes Atoll, in an attempt to minimize variance, increase statistical power, and increase the robustness of the resulting derived products. This year we will visit several other remaining islands and atolls in the archipelago, and again the cruise will not visit every reef and island in the NWHI, but rather will focus on fewer sites in order to increase sample sizes and statistical power for the comparison of the old and new methods. The new methods will be intercalibrated with the previous protocols, so that all data collected between 2000-2009 and beyond may be incorporated into a continuous time series.

7. Answer the Findings below by providing information that you believe will assist the Co-Trustees in determining how your proposed activities are compatible with the conservation and management of the natural, historic, and cultural resources of the Monument:

The Findings are as follows:

a. How can the activity be conducted with adequate safeguards for the cultural, natural and historic resources and ecological integrity of the Monument?

Surveys will be conducted in a manner that brings the divers in very limited direct contact with the natural resources. Fishes, invertebrates, and corals can be identified visually and no specimens of these taxonomic groups will be collected. Many species of algae require microscopic or histological examination to confirm identification, so a very limited numbers of algal voucher specimens will be collected as necessary to make positive identifications.

These surveys will not occur in the vicinity of any known western or Native Hawaiian archaeological sites within the Monument, and thus are unlikely to impact any such resources. If possible archaeological sites are seen; GPS coordinates for the sites as well as a general description will be taken and provided to Monument staff.

Because of the close relationship between Native Hawaiians and the ocean, the marine life of the NWHI also constitute a living cultural resource whose well-being is integral to the perpetuation of cultural values and practices. Many, if not most, of the species surveyed by the methods outlined in this application are of great cultural significance to Native Hawaiians, in spiritual, religious, nutritional, utilitarian, and other ways. A program such as the RAMP time series, whose goal is to characterize and monitor the Monument's living marine resources, will directly inform traditional managers and Native Hawaiian practitioners of the distribution and abundance of these resources within the Monument.

Finally, all scientists participating in this cruise will receive a Native Hawaiian cultural briefing before departure. In addition, the primary permittee, chief scientist, and other appropriate

personnel will consult with the Office of Hawaiian Affairs (OHA) and the Monument's Native Hawaiian program coordinator on proper conduct while in the NWHI, on cultural sensitivities associated with the proposed activities and locations, and on the applicability of the results of this research to the role of OHA as one of the NWHI management agencies.

b. How will the activity be conducted in a manner compatible with the management direction of this proclamation, considering the extent to which the conduct of the activity may diminish or enhance Monument cultural, natural and historic resources, qualities, and ecological integrity, any indirect, secondary, or cumulative effects of the activity, and the duration of such effects? The proposed activities are consistent with the terms of the Proclamation in that they will "further understanding of Monument resources and qualities," and will "assist in the conservation and management of the Monument." They are also consistent with the Findings regarding the issuance of permits by the Secretaries. Management regulations pertaining to the Monument, such as disease mitigation regulations, are strictly adhered to when conducting operations within the Monument. The proposed activities will provide critical data that will greatly enhance the Monument managers' ability to characterize and understand the ecosystems within the Monument. The scientific methods to be used on this cruise are designed to have minimal, if any, negative effects on the environment. There are no anticipated indirect, secondary or cumulative effects of the proposed methods.

c. Is there a practicable alternative to conducting the activity within the Monument? If not, explain why your activities must be conducted in the Monument. The variances generated within a data set are potentially unique to each site due to the abundance and distribution of the organisms present there. Similar tests conducted in the Main Hawaiian Islands or elsewhere would be of questionable applicability because of fundamental differences in the assemblage structures of marine organisms when compared to the NWHI. Thus, the efficacy of the revised data collection protocols for monitoring in the NWHI cannot be tested anywhere but the NWHI.

d. How does the end value of the activity outweigh its adverse impacts on Monument cultural, natural and historic resources, qualities, and ecological integrity? Annual monitoring surveys are necessary to establish baseline abundances of coral reef organisms, to begin to understand the range of natural spatial and temporal variability that characterizes the ecosystems of the NWHI, and to establish a baseline against which changes due to the effects of large scale, long-term natural and anthropogenic impacts can be compared. These baselines will also be useful in documenting the impacts of episodic or localized natural and anthropogenic perturbations of the environment, such as storm damage and vessel groundings. There are to be no adverse impacts on the Monument cultural, natural and historic resources, qualities and ecological integrity from the proposed activities.

e. Explain how the duration of the activity is no longer than necessary to achieve its stated purpose. The time allotted for this research is the minimum amount of time needed within Monument waters to complete the required work. Due to the considerable size of the Monument and the

transit time between locations, we are only able to survey some of the islands/atolls that we did not have time to survey in 2007. The provided schedule will maximize the amount of operational days available.

f. Provide information demonstrating that you are qualified to conduct and complete the activity and mitigate any potential impacts resulting from its conduct.

The Monument staff and their partners involved in conducting the yearly coral reef monitoring have proven themselves capable of collecting monitoring data with no adverse impacts to the natural resources of the Monument. RAMP cruises have been successfully conducted on an annual basis in the NWHI since 2000 in conjunction with NOAA Coral Reef Ecosystem Division, the State of Hawaii, and other partners. Team members are experienced divers and highly trained personnel who will be under the guidance of the Chief Scientist (CV attached).

g. Provide information demonstrating that you have adequate financial resources available to conduct and complete the activity and mitigate any potential impacts resulting from its conduct. This cruise and subsequent data analyses are supported by an allocation of 35 days at sea aboard Hi'ialakai from NOAA's Office of Marine and Aviation Operations, and a line item in the budget of NOAA's Papahānaumokuākea Marine National Monument.

h. Explain how your methods and procedures are appropriate to achieve the proposed activity's goals in relation to their impacts to Monument cultural, natural and historic resources, qualities, and ecological integrity.

Standardized survey procedures are employed during operations, and are the minimum effort needed to obtain the data. The procedures are designed with the intention of monitoring and assessing the coral reef ecosystem with as little impact as possible to the Monument resources. Through various cruises and reports the methods used have shown to have little impact on the habitat being observed.

i. Has your vessel been outfitted with a mobile transceiver unit approved by OLE and complies with the requirements of Presidential Proclamation 8031?

Under a separate permit, the Hi'ialakai is outfitted with a mobile transceiver unit.

j. Demonstrate that there are no other factors that would make the issuance of a permit for the activity inappropriate.

We are not aware of any other factors that would make the issuance of a permit for the activity inappropriate.

8. Procedures/Methods:

Benthic community structure survey methods:

Working at depths between 3 to 30 m, each dive takes place within a 100m x 100m cell whose midpoint has been previously determined by mapping/GIS personnel as part of a stratified random site selection process. The benthic team, consisting of five divers, enters the water 10-15

minutes after the two-person fish team. Two, 25m transect lines are randomly deployed, with a surface float on which a GPS receiver is mounted, marking the beginning of each transect line. One member of the benthic team is responsible for conducting the line-intercept method at 0.25m intervals along the transect lines for the purposes of determining substrate composition, with a particular focus on determining coral percent cover on a species-specific basis..

Two divers are responsible for measuring the dimensions (length x width x height) of each coral, by species, whose center falls within a 0.5m belt on each side of the transect line, and for determining the health status of each colony. In addition, a 0.25m x 0.25m quadrat will be used within each 5m segment along the transect lines to enumerate, and measure, coral recruits (< 5cm maximum diameter).

A trained phycologist will record benthic cover along the transect lines at 10 cm intervals to determine percent cover by algae at the lowest level of taxonomic resolution possible, using a point intercept method. Additionally, when time allows, a photoquadrat will be used to take high-resolution digital images to create a historical record of the site. A random swim is used to collect voucher specimens of algae from the site. The photoquadrat will be used to take high-resolution digital images to create a historical record of the site.

Finally, visual surveys will be conducted for macroinvertebrates by conducting ten quadrat enumerations (.25m² quadrat) at 2 m intervals along the 25 m lines. Target species include cnidarians (Zoanthids, Actinarians, Hydrocorals), echinoderms (echinoids, holothuroids, and asteroids), molluscs (bivalves, gastropods, nudibranchs, and cephalopods), and decapod crustacea.

Fish community structure survey methods:

Working at depths between 3 to 30 m, each dive takes place within a 100m x 100m cell whose midpoint has been previously determined by mapping/GIS personnel as part of a stratified random site selection process. The fish team, consisting of two or three divers, will count all fishes utilizing both a belt transect method and a modified stationary point count (SPC) method.

At each randomly selected site, three 25 meter belt transect lines are surveyed. Two divers swim side by side along a transect line each recording all fish larger than 20cm observed within a 4 meter wide x 4 meter high belt parallel to their respective side of the transect (200m² area per belt, 100m² per diver). The divers make a second pass along each transects recording all fish less than 20cm observed within a 2m wide x 4m high belt (100m² area per line, 50 m² per diver). The large fish surveys take approximately 5 minutes to complete while the smaller fish surveys take about 10 minutes to complete.

Under the SPC method, at each randomly selected site, 1 or 2 two-diver team(s) enter the water and haphazardly select a survey location. The divers lay down two contiguous 15m lines and each position themselves in the middle of one of these lines. From this pivot point, the divers record all individual fish within a 7.5m radius area for a period of 10min. Afterwards, the divers move to the beginning of their respective 15m lines and count all individuals on a 2m-wide belt

centered on the line. This procedure is repeated once by each team (2 replicates per team). Divers will be within 15m of each other during these surveys.

NOTE: If land or marine archeological activities are involved, contact the Monument Permit Coordinator at the address on the general application form before proceeding, as a customized application will be needed. For more information, contact the Monument office on the first page of this application.

9a. Collection of specimens - collecting activities (would apply to any activity): organisms or objects (List of species, if applicable, attach additional sheets if necessary):

Common name:

Assorted green, red, and brown algae species.

Scientific name:

Please see Attachment A.

& size of specimens:

No more than one voucher specimen per species of algae per site. No more than one 1 gallon Ziploc bag total volume of wet specimens per site.

Collection location:

Specimens will be collected at sites surveyed by benthic teams at Necker Island, Maro Reef, Laysan Island, Lisianski Island, Midway Atoll, and Kure Atoll. Specific site selection will be via a randomized design (Attachment B).

☒ Whole Organism ☒ Partial Organism

9b. What will be done with the specimens after the project has ended?

Specimens in frozen and/or pressed state will be initially deposited in the collections at one of the following locations: the NOAA NOS PMNM office, NMFS PIFSC CRED office, or Department of Botany, University of Hawaii at Manoa, for identification and analysis.. Where appropriate, voucher specimens will be deposited in the collection at the B.P. Bishop Museum, Honolulu, Hawaii.

9c. Will the organisms be kept alive after collection? ☐ Yes ☒ No

• General site/location for collections:

• Is it an open or closed system? ☐ Open ☐ Closed

• Is there an outfall? ☐ Yes ☐ No

- Will these organisms be housed with other organisms? If so, what are the other organisms?
- Will organisms be released?

10. If applicable, how will the collected samples or specimens be transported out of the Monument?

Algal specimens will be dried and pressed, or frozen, and transported out of the Monument on board the Hi'ialakai.

11. Describe collaborative activities to share samples, reduce duplicative sampling, or duplicative research:

To the best of our knowledge, the proposed project is unique in the NWHI and does not duplicate any other current initiatives. After preliminary analysis, preservation or pressing, and curation, all algal specimens collected will be made available to bona fide researchers upon request.

12a. List all specialized gear and materials to be used in this activity:

Specimens of fleshy macro algae will be hand collected. Voucher specimens of crustose coralline algae may be collected with a geologist's pick and chisel, or by hand (free-living rhodoliths).

12b. List all Hazardous Materials you propose to take to and use within the Monument:

None

13. Describe any fixed installations and instrumentation proposed to be set in the Monument:

None

14. Provide a time line for sample analysis, data analysis, write-up and publication of information:

Initial collections will be reported in the Cruise Report for HI-07-08. Monitoring reports resulting from this cruise will be finalized (with input from partners and Monument agencies) by October 2010.

15. List all Applicants' publications directly related to the proposed project:

With knowledge of the penalties for false or incomplete statements, as provided by 18 U.S.C. 1001, and for perjury, as provided by 18 U.S.C. 1621, I hereby certify to the best of my abilities under penalty of perjury of that the information I have provided on this application form is true and correct. I agree that the Co-Trustees may post this application in its entirety on the Internet. I understand that the Co-Trustees will consider deleting all information that I have identified as "confidential" prior to posting the application.

Signature

Date

**SEND ONE SIGNED APPLICATION VIA MAIL TO THE MONUMENT OFFICE
BELOW:**

Papahānaumokuākea Marine National Monument Permit Coordinator
6600 Kalaniana'ole Hwy. # 300
Honolulu, HI 96825
FAX: (808) 397-2662

DID YOU INCLUDE THESE?

- ☒ Applicant CV/Resume/Biography
- ☒ Intended field Principal Investigator CV/Resume/Biography
- ☐ Electronic and Hard Copy of Application with Signature
- ☐ Statement of information you wish to be kept confidential
- ☐ Material Safety Data Sheets for Hazardous Materials